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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,718	02/09/2004	Adlai Smith	38203-6082B	3857
33123	7590	11/17/2004	EXAMINER KOYAMA, KUMIKO C	
DAVID A. HALL HELLER EHRMAN ET AL. 4350 LA JOLLA VILLAGE DRIVE #700 SAN DIEGO, CA 92122			ART UNIT 2876	PAPER NUMBER

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



<b>Office Action Summary</b>	Application No. 10/775,718	Applicant(s) SMITH ET AL.	
	Examiner Kumiko C. Koyama	Art Unit 2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 44-47 and 50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 44-47 and 50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>040904</u> . | 6) <input type="checkbox"/> Other: _____  |



## DETAILED ACTION

Acknowledgement is made of receipt of Preliminary Amendment filed on February 09, 2004 and June 25, 2004.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 44 and 50 are rejected under 35 U.S.C. 102(e) as being unpatentable by  
Ausschnitt et al (US 5,805,290, as cited by the Applicant).

Ausschnitt discloses an overlay target having array elements (Fig 18), and an optical metrology tool is used to measure the array of elements (col 10, lines 33-35). The target comprises four sets of alignment attributes. The first set of alignment attributes 140 is disposed along a first column (Fig 18). The second set of alignment attributes 142 is complementary to the first set of alignment attributes and is disposed along a second column distinct from the first column, wherein the alignment attributes in the first and second sets are aligned in corresponding rows (Fig 18). The third set of alignment attributes 134 is distributed along the first row between the first and second column (Fig 18). The fourth set of alignment attributes 132 is complementary to the third set of attributes and is disposed in a second row distinct from the first



row, wherein the alignment attributes in the third and fourth sets are aligned in corresponding columns (Fig 18). As shown in Fig. 18, the second and fourth attributes are opposite to the first and third attributes, and therefore, also complementary to each other. The second and fourth attributes are closely located to each other to form a united mark and therefore, are interlocked with each other as well.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 45 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt et al (US 5,805,290, as cited by the Applicant) in view of Dao et al (US 5,700,602, as cited by the Applicant). The teachings of Ausschnitt have been discussed above.

Ausschnitt fails to disclose that the reticle has reduced transmission.

Dao discloses an attenuated phase-shifting reticle that uses an embedded film, which is engineered to have a reduced transmission (col 2 lines 7-10).

In view of Dao, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to employ the teachings of Dao to the teachings of Ausschnitt in order to minimize effects of diffraction, therefore resulting in more accurate reading of overlay measurement and improve the overlay alignment.



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5. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ausschnitt in view of Dao as applied to claim 45 above, and further in view of Fukuda (US 5,262,257, as cited by the Applicant). The teachings of Ausschnitt as modified by Dao have been discussed above.

Ausschnitt as modified by Dao fails to teach a reticle comprising a partially reflecting dielectric coating.

Fukuda discloses an alignment patten of a mask formed by a dielectric material film 36 (col 3 lines 32-34).

In view of Fukuda, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to employ the teachings of Fukuda to the teachings of Ausschnitt as modified by Dao in order to reflect the light and acquire proper image of the patten for overlay alignment.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kumiko C. Koyama whose telephone number is 571-272-2394. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 571-272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kumiko C. Koyama  
November 09, 2004



**DIANE I. LEE**  
**PRIMARY EXAMINER**